



# System Market Power Mitigation discussion

Perry Servedio

Lead Market Design Policy Developer

Market Surveillance Committee Meeting

General Session

March 13, 2020

# Agenda

1. Discuss a ISO-specific system market power mitigation design
2. Answer clarifying questions on the ISO-specific design
3. Discuss an approach that expands the concepts from the ISO-specific design to the rest of the energy imbalance market
4. Open discussion on the following topics which apply to both designs
  - Determining the scope of the constrained area
  - How to treat EIM supply in the pivotal supplier test
  - How to treat import offers in the pivotal supplier test
  - Determining the appropriate resource offers to mitigate

# Objective of the ISO-specific system market power mitigation design

- Determine if ***suppliers within the ISO balancing area*** can potentially exercise system-level market power
  - Can suppliers within the ISO balancing area artificially raise market clearing prices by bidding above marginal cost?

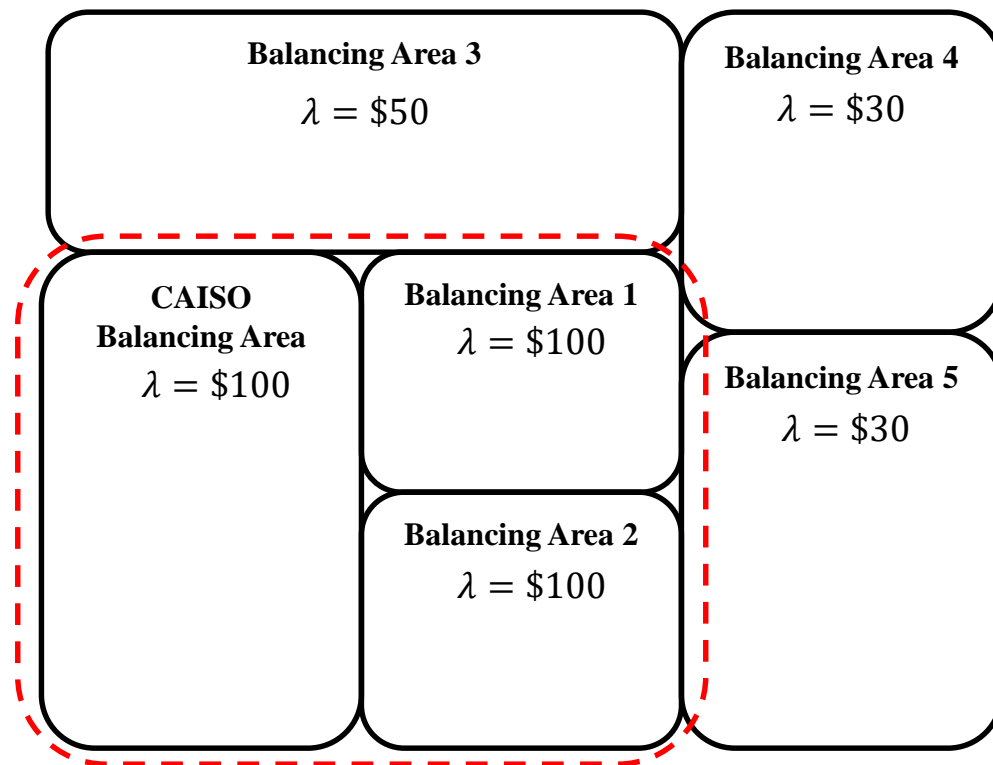
# When is the ISO import constrained and over what area can ISO supply potentially exercise system-level market power?

- Market power mitigation is triggered when a constraint limits the flow of competitive power into a constrained area
- We have struggled to find a set of import limits that, when binding, could represent that the ISO balancing area itself is import constrained
  - We still have access to imports and EIM transfers on other interties
- Even if no major import constraints bind, suppliers within ISO may have the opportunity to exercise system-level market power if the ISO is in a constrained sub-area within the western interconnection
  - Depends on the size of the constrained sub-area

## Conceptual design overview

- Perform pivotal supplier test in every interval
- Identify the bounds of the ISO constrained sub-area within the EIM which may include other EIM balancing areas
- Determine if aggregate supply in the constrained sub-area minus pivotal supply within the ISO is enough to serve the aggregate demand in the constrained sub-area
- If the pivotal supplier test fails, mitigate offers from resources within the ISO balancing area

Identify the bounds of ISO constrained sub-area within the energy imbalance market using the power balance constraint shadow prices



# Calculate the pivotal supply to use in the pivotal supplier test

- Determine the potentially pivotal supply for supplier affiliate groups:
  - Calculate the offered quantity of internal ISO supply associated with an affiliate group
    - Apply ramping and commitment limitations
  - Calculate load-serving obligations of internal ISO supply associated with an affiliate group
    - Use rolling average meter data to calculate LSE ratios
    - Apply the calculated LSE ratio to the real-time forecast in each interval
    - Account for these load-serving obligations in the calculation of potentially pivotal supply
- Determine the pivotal supply as the supply from the affiliate groups with the three largest amounts of potentially pivotal supply

# Calculate the fringe supply to use in the pivotal supplier test

- Non-pivotal internal ISO supply
  - Apply ramping and commitment limitations
- Aggregate supply in converged EIM balancing areas
  - Apply ramping and commitment limitations
- Intertie Transmission Constraint (ITC) limited import offers
  - Calculate the portion of import offers that could make it into the ISO balancing area using the inter-related ITC limits



# Calculate the demand to use and perform the pivotal supplier test

- ISO balancing area demand forecast
- Demand forecast in each converged EIM balancing area
- Net cleared transfers into the converged EIM sub-area
  - Transfers into the area are considered supply and will decrease the demand
  - Transfers out of the area are considered additional demand
- Perform the pivotal supplier test by testing whether demand can be served with fringe supply

# Calculate competitive LMP and mitigate internal ISO resources

- Calculate a competitive LMP to represent the “going-rate” for power in the west
  - Prevent economic flow reversal out of the CAISO balancing area

*Competitive LMP =*

*min( next un-cleared economic import offer , min(Competitive EIM area PBC shadow costs ) )*

- Mitigate internal ISO resource bids to the maximum of their DEB or the competitive LMP
- Import offers not mitigated
  - Import suppliers would withhold and raise prices by reducing bid quantities or not bidding
  - Other suppliers may be discouraged from offering due to the possibility of offer mitigation
  - Fringe supply relative to ISO pivotal suppliers

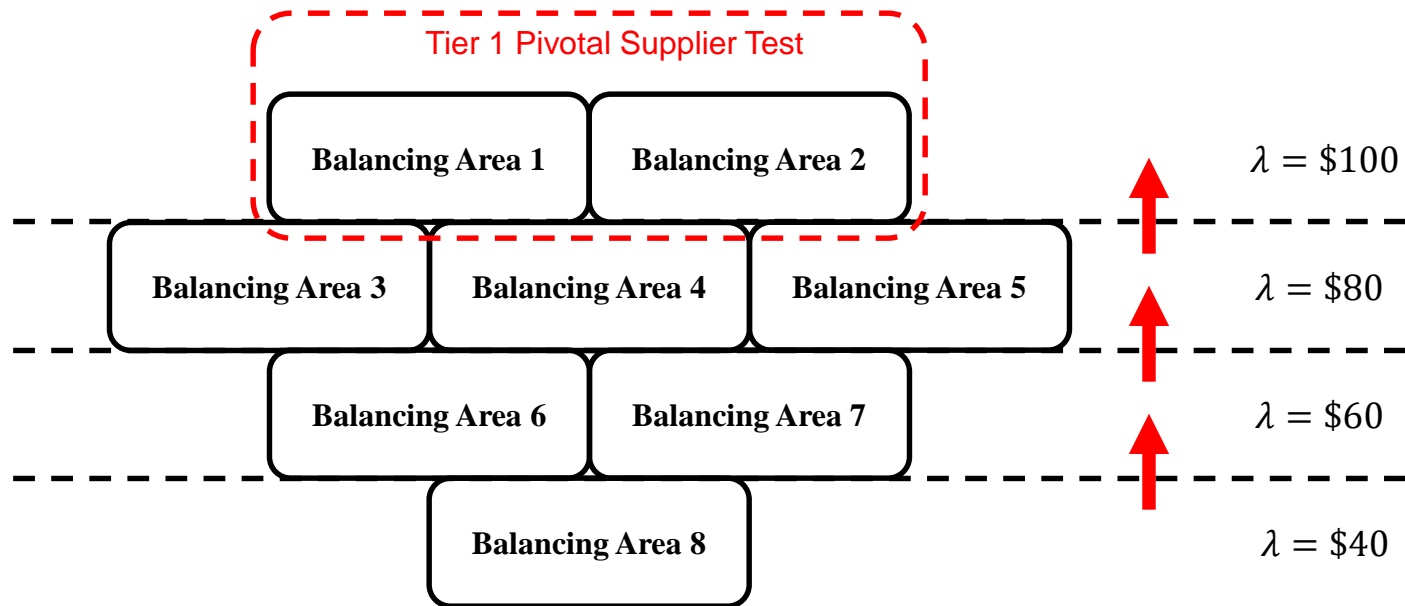
## Clarifying questions?

- We will answer clarifying questions on the approach presented so far.
- Then, in the next few slides, we would like to discuss an approach that expands these concepts to the broader energy imbalance market.
- Finally, we will tee up discussion topics that relate to both designs.

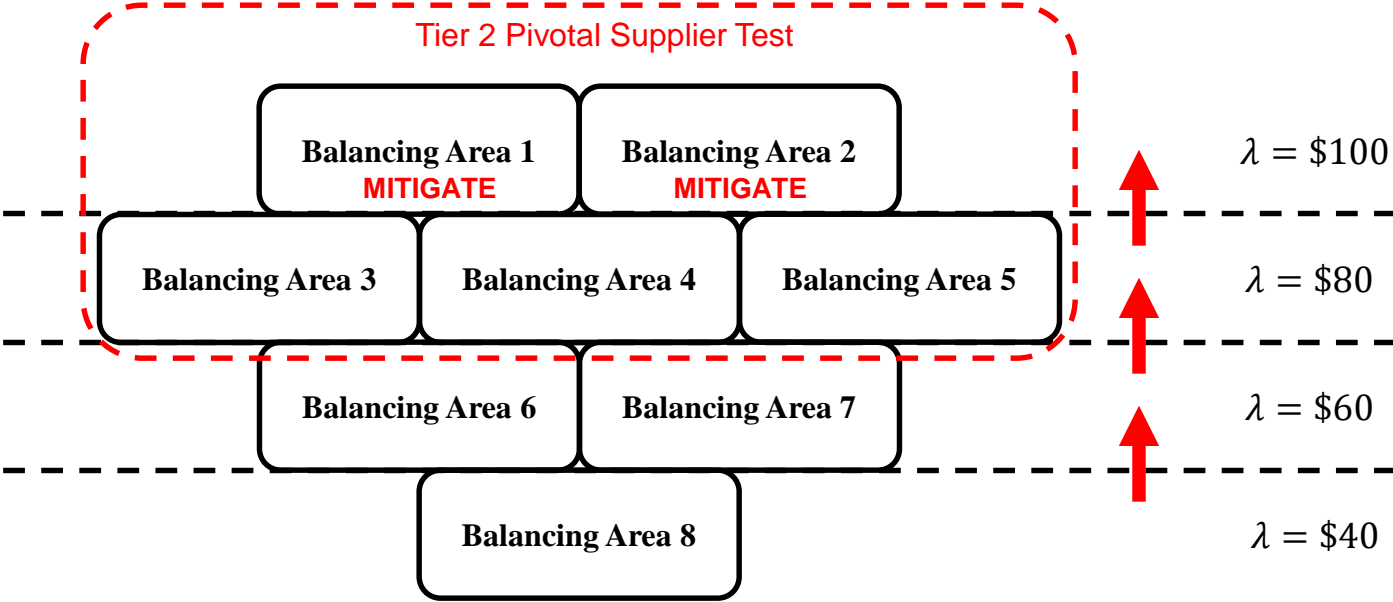
## This proposal led us to consider whether we should expand the grouping concept to the entire EIM

1. Group EIM balancing areas into tiers based on power balance constraint shadow prices, highest to lowest price
2. Perform pivotal supplier test on the highest price group using the group fringe supply and group demand
3. If the test fails, flag the balancing areas in the group for mitigation and expand the group definition to include the next highest cost group
  - Perform pivotal supplier test on the broadened group, flagging the balancing areas in the group if the test fails
  - Stop expanding the test when the pivotal supplier test passes

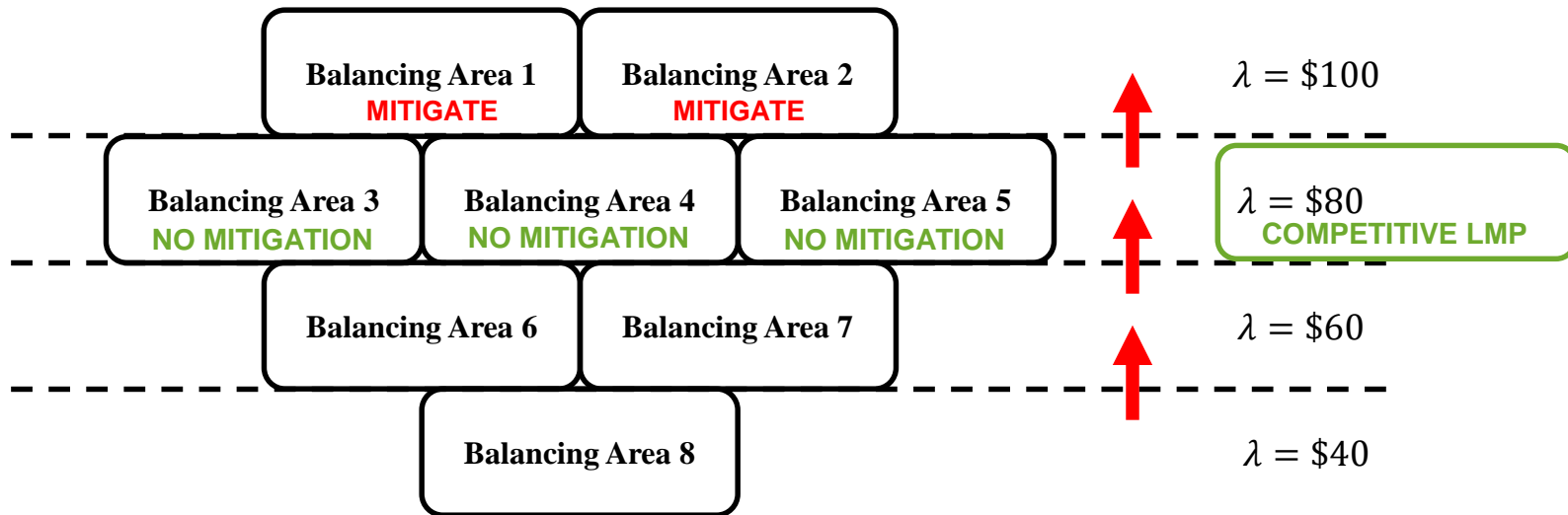
This proposal led us to consider whether we should expand the grouping concept to the entire EIM



This proposal led us to consider whether we should expand the grouping concept to the entire EIM



This proposal led us to consider whether we should expand the grouping concept to the entire EIM



# Considerations

- Determining the constrained area
  - What are the benefits of using EIM power balance constraint shadow prices versus ISO binding import constraints?
- Treatment of converged EIM balancing area supply in the pivotal supplier test
  - For purposes of ISO's test, assume fringe because they usually have large load-serving obligations
  - Under the expanded approach, is it feasible to adjust potentially pivotal supply to account for large load-serving obligations
- Treatment of import offers in the pivotal supplier test
  - What are the benefits of using ITC-limited offers versus cleared imports?
- Determining the appropriate resource offers to mitigate
  - Should only pivotal supply offers be mitigated rather than all generation offers in the constrained area?
  - Should import offers be subject to mitigation